

Post-construction Environmental Assessment of Media Architecture Based on Spatial Syntax and Network Evaluation - Case Study of Beijing Road in Guangzhou

Haoyi Ruan¹, Duan Wu^{2*}

¹ Wales Institute of Science and Art, University of Wales Trinity Saint David, Wales, United Kingdom

² School of Architecture & Applied Arts, Guangzhou Academy of Fine Arts, Guangzhou, China

Email Address

2105637@student.uwtsd.ac.uk (Haoyi Ruan), Wudian3000@qq.com (Duan Wu)

*Correspondence: Wudian3000@qq.com

Received: 15 May 2023; Accepted: 26 May 2023; Published: 20 June 2023

Abstract:

In a commercial, entertainment-driven, capitalist leading building market, media architecture is becoming a trend showing a global building renovation trend that is not limited to commercial architecture. In the renovation process, public perceptions of buildings before and after renovation have changed, and whether media architecture has a positive or negative effect on the perception of the site needs to be investigated and studied. This research is based on a comprehensive assessment and research perspective, using visual ethnography as the research methodology, combined with spatial syntax and network evaluation, to conduct a field survey and network evaluation crawl of the Beijing Road in Guangzhou, China. The research is divided into three phases. The first phase uses the spatial sentence method to analyze the urban space of the Beijing Road area. It combines it with the location of the media buildings obtained from the field survey. The second stage was a field survey of Beijing Road and a 2-minute video shoot of the content presented by 12 media buildings, reflecting on the rationale behind the core display content offered by the media buildings. The third stage of the research was a web-based data crawl of Beijing Road, where the public reviews were selected as the object of the study, and the 5,420 text reviews and 24,727 images crawled were qualitatively analyzed. Finally, the three phases of the study were combined to provide a comprehensive evaluation of media architecture's involvement in place perception and spatial cognition. The study concluded that spatial transformation with media architecture at its core positively correlated with environmental evaluation.

Keywords:

Media Architecture, Visual Ethnography, Spatial Syntax, Online Evaluation

1. Introduction

Although the latest definition of media architecture suggests that it is developing as a product of a degree of integration with virtual technologies, machine learning, human-computer interaction, and a dedication to technologies such as virtual space and metaverse [6,15], the impact of media architecture on the physical environment should not be underestimated. In many places worldwide, numerous buildings are fitted with electronic screens by policy, capital, and the media. Building facades, billboards, and public information boards are surrounded by brilliant information.

Media architecture has become a common construction phenomenon [6], especially in some developed countries or regions in Asia, such as Shanghai, Seoul, Tokyo, Singapore, Etc [1,16,17,18]. The screen may be just one way to look at architecture. The phenomenon of the urban screen impacts the spatial dimension and constitutes an extraordinary spatial experience in the spatial dimension [15]. The media screen makes the architecture different from the traditional way of viewing and also changes the understanding of space. According to McLuhan, the new media will not change the old media but will change the way things are viewed [7]. This opportunity for using digital screens to create a sense of place and add long-term social, cultural and economic value for cities.

In China, the market for building construction is slowly changing from an incremental market to a stock market, and the building boom trend is gradually coming to a halt. But the renovation boom is rising, with many already-built buildings facing a media-architectural upgrade. Many examples of already renovated buildings exude great vitality in their original urban areas, changing the city's image and the lives of the people around them. Media architecture is fast becoming a central part of the environment as it becomes part of the city.

But in the process, some management and values issues emerged. City administrators still view the increasing number of screens as urban advertising. Most of them are contracted by the corresponding media companies, neglecting non-commercial values such as the value of media architecture in public education and public interaction in pursuing economic benefits. According to Wouters, the benefits of media buildings are more non-commercial than the immediate commercial returns of advertising [19]. However, most media buildings in China fail to do so. From a resource perspective, this has resulted in an unavoidable waste of public resources; from a content perspective, it needs a particular mass base and shared decision-making. From an ethical standpoint, it also causes a certain amount of distress. According to a study by Schielke and Ma, China is using media architecture to create a night-time economy and urban tourism, stimulating the economy and shaping national identity at the same time [18]. If we look at it from Wouters' point of view, is the cultural and identity value created by media architecture more valuable to study than the economic value?

This research is based on the perspectives mentioned above. It examines how the understanding and evaluation of sites have changed before and after the construction of media architecture. This research process encompasses the relationship between the city and the media building and how the siting of the media building is further linked to the city and influences the city's inhabitants and visitors. Residents and visitors are affected by the images, places, and images of the media buildings in the space and share their views of the site on social networks. The physical information measured

on the site is combined with user evaluations to assess the post-construction of the media architecture.

2. Methods

This study utilizes visual ethnography as the primary research methodology. It also applies some architectural, urban planning, and sociological studies to help understand how media architecture influences the evaluation of the environment and to find some common findings.

Visual ethnography uses video and media as material for qualitative research, supported by the observation of clues in photography or images [3,8]. Video and images as content of media architecture are directly representative of the way people understand and experience media architecture [20], so video filming and recording images of media architecture displays and observing the reactions of people around them to the content of media architecture is the leading research technique used in this study.

Research session was divided into three phases. Before the three phases, the researcher conducted visits and brief interviews with residents and visitors to the site to gain a basic understanding of the site. In the first phase, the spatial syntax was used to analyze the Beijing Road area. As a new language for describing architectural and urban spatial patterns, the basic idea of spatial syntax theory is to divide the space into scales and spatial divisions, analyze their complex relationships and relate them to economic, social, and human activities [9]. Liu and Hespanhol argue that media architecture is a mode of construction that intervenes in the urban environment through digital media [21]. The spatial syntax allows the effects of this building mode to be presented through the superimposition of the site's digital properties.

And then the second phase of the study focused on the level of video research through the 2-minute filming of the screens on 12 buildings in the Beijing Road area, which were classified and integrated. The study of Beijing Road attempts to draw relationships between the presentation of media architecture's content and the elements of building function, attribution, audience, and message.

The final stage of the research was a web crawl of reviews of the Beijing Road tourist area on review sites, containing 5420 textual reviews and 24,727 images. The textual analysis of the thoughts and the classification of the photos were used to uncover how the reviews of the place changed before and after the media transformation of Beijing Road. By combining the three stages of research, it is possible to obtain the changes in people's evaluation and feelings towards the space before and after the transformation of Beijing Road, which is oriented toward media architecture.

3. Finding

3.1. Pilot Research

Based on the observation and on-site investigation of the on-site audience. The author found that at this central intersection, people always stopped involuntarily and began observing and taking photos and short videos of the media architecture. They even talked about the content on the screen with their companions. There is no doubt that this media building has become the most dazzling star in this area. After a long observation period, the author selected six people attracted by the screen and

interviewed and recorded them after asking for their consent. Ask them questions by numbering the interviewees in A, B, C, D, E, and F. And ask the question following.

Question List:

- First impression of the screen.
- Which one likes, the building with a screen or without a screen, and why?
- What would you like to see on the screen?



Figure 1. Site photos and recording method.

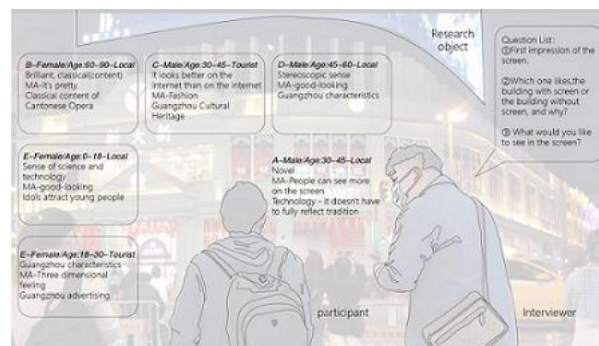


Figure 2. Finding of pilot research.

From the findings of the study, we can see that(Figure 2):

(1) People's initial experience of media architecture often thinks that media architecture is novel and has a sense of three-dimensional science and technology. Some people also pay attention to the content of media architecture and think that the content it shows is classic and has the characteristics of Guangzhou city. At the same time, some people think that media architecture is dazzling and that media architecture has a better impression of social media than reality.

(2) Although people's initial experience of media architecture is different, people's acceptance of media architecture is very high. Regardless of men, women or older people and children, they all think media architecture has more fashionable and technological charm than non-media architecture. People can also see more information on media architecture.

(3) For the content of media buildings, there are two opinions. Some people think that the content of media buildings should express itself, show the combination of science and technology and humanities, and show the urban characteristics of Guangzhou. However, some people think that in a complex street like Beijing Road, the content of media buildings should express the stylish commercial atmosphere, and some fashionable performances may be more suitable for this place.

Through pilot research, we can see that content is significant in the perception path of media architecture and even plays a decisive role. Therefore, if we want to study the feelings of media architecture on people, we should first start with studying the

images of media architecture. This discovery has affected the research direction to a certain extent in the future.

3.2. Research Scope

After gaining an initial understanding of the Peking Road area through previous research (Figure 3), the next stage was determining how many media buildings were in this area. After a fundamental analysis of the site through picture 3, it was found that there are 12 buildings equipped with media screens (numbered A-L) and one building equipped with variable lighting effects (numbered M) in the Peking Road area. From number A to number L, all facilities except number A, number I, and number J have commercial uses, including large shopping centers or department stores (C, D, E, F, G, H, L) and small shops, including cinemas (B) and goldsmith shops (K).



Figure 3. Site status.

Beijing Road is a cultural, entertainment, and commercial street in Yuexiu District, Guangzhou City, Guangdong Province, China. It is located in the center of Guangzhou City, Guangdong Province, where the city was first built and was historically the busiest commercial hub, with an average daily flow of around 400,000 people, reaching over 600,000 during holidays and peaking at a million. Beijing Road was redeveloped in September 2020, mainly around the road from point B to M. The four public space buildings on the façade of Beijing Road, A, I, J, and M, were the main targets of the redevelopment, and the surrounding shopping malls on this road were also upgraded with the media (including G and H). At the same time, another road in this area (buildings D, E, F, and G) is also the main media transformation area. Most media screens are also installed on these two main roads, which is closely related to the pedestrianized nature of the site.

In the next stage of this section, the overall piece is examined in terms of the digital and physical attributes of the space, the content presented on screen, and the evaluation of social networks.

3.3. The Logic Behind the Space: Spatial Syntax in Media Architecture

In this study, DEPTHMAP, a software developed by Bill Hillier at the Bartlett School of Architecture, University College London, will be used as the primary research tool to study spatial syntax [9]. The software is designed to analyze space structure, not only within and between buildings but also across cities and countries. It provides a series of parameters that quantitatively describe the topology of urban and architectural spaces. The impetus and process of software development stem from the scientific study of spatial morphology and human social, economic, and cultural behavior. Calculating the different mathematical attributes of the places and drawing the pseudo-color map (Figure 4) lead to the overall spatial attributes of the Beijing Road area.

Axis is the most fundamental element of the spatial syntax, and by measuring and calculating the relationship between axes, it is possible to know how many times each section of the site is connected to other roads. As Hespanhol and Tomitsch describe, media buildings are influenced by their surroundings, architecture, social customs, and the values and habits of residents and visitors [22], so roads more closely related to the surrounding roads have more footfall. The benefits of building media buildings on these roads are most significant. In addition, there is the issue of viewing points, as the whole of the Beijing Road area is essentially a pedestrianized street, from B to M and from E to G are mainly pedestrianized areas, where the placement of large screens is more conducive to conveying relevant information to visitors.

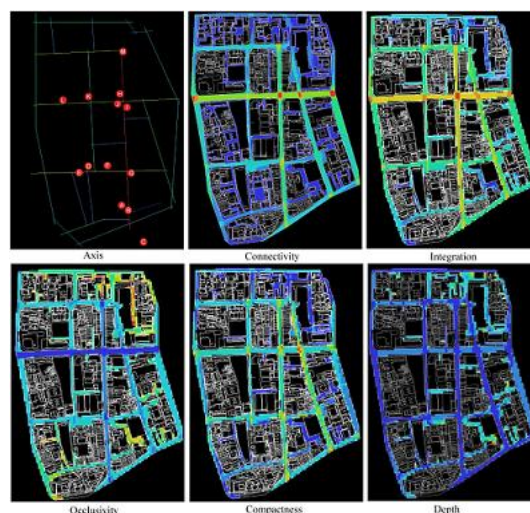


Figure 4. Spatial syntactic pseudocolour diagram.

The next step is to look at the spatial-geographical relations of Beijing Road from the perspective of the field of view by dividing the map into squares of 5 meters by 5 meters.

a. Connectivity: This indicates the number of intersecting spaces in the system. As can be seen from the pseudo-colour diagram, the highest connectivity values are found at the crossroads spread out from the H. This area is the most developed commercial area. The interviews in the field also revealed that a large number of billboards are installed in this area, and a large number of business activities are

concentrated in these areas. It is worth discussing objectD, where the spatial calculations show that the spatial connectivity is much lower than in other areas and where the media screens are less visible after the fieldwork.

b. Integration: The degree to which a space is clustered or discrete from other spaces in the system. In the pseudo-colour diagram, the areas with the highest degree of clustering have the three densest media buildings, H, I, and J. The other objects are also positively correlated with the degree of spatial clustering. It is worth noting that although Road I-L is more clustered than Road E-G, Road E-G has four media buildings despite being less clustered than Road I-L, due to the different nature of the two roads, with Road I-L being primarily a vehicular road and Road E-G being a pedestrian road.

c. Occlusivity: expresses the ratio between the occlusion of visual edges and the area visible from a particular position. The results of the calculation show that most of the media buildings are located in places with low occlusivity, which is logical.

d. Compactness: indicates the relative dispersion of the points directly connected to the stated location. The higher the compactness of a space, the more enclosed it is. Considering that the primary function of the area is a pedestrian street, and therefore according to Yoshiharu Ashihara's theory on the aesthetics of the street, a high degree of compactness can, on the contrary, encourage visitors to go to the vertical side of the space to obtain information [10], the media screens installed on the façade of the building become a tool for information interaction and a medium for transmitting the information.

e. Depth: indicates the minimum number of connections required to reach space. The higher the depth value, the more difficult it is to access the space. The observation and calculation show that the overall depth value in the Beijing Road area could be much higher, so it is convenient to place media buildings. In addition, roads I-L have a lower depth value than roads E-G, which is related to the width of the road.

After calculating the Beijing Road area, the following short findings can be found:

a. The Beijing Road area has 12 media screens, which are installed on the roads in the site, and mostly at intersections, which is related to the essential function of the media building to convey information.

b. The screens should be installed in line with the movement of the site. Although the area where subject G is located is at an intersection, G needs to convey information better because of the narrow view of the intersection.

c. There is a need to be wary of too much information. In one intersection of the site (with objects H, I, and J), object H and I propagate better than object J. The reason for this, apart from the objects being at different heights, is that there are so many screens that people do not know where they can see.

3.4. The Essence of the Screen: Research of Content

Whereas the previous phase of the study focused on the spatial dimension to look at the relationship between urban space and media architecture, the next phase will focus on the relationship between content and architecture.

Scholar Pavlaki's research using video ethnography during the Manchester Media City Light Festival suggests several perspectives on media means of shaping public space, namely Digital Element in the City, Exploring the Affordances in Place

Experience, Urban Digital Art Events, and Challenges of Media Interventions in Public Space [25]. The screen has become a hybrid urban landscape involving issues of media, place, place, lighting, and culture [2], and has gradually become the 'console' of architecture [4] and is in a state of Recursive domestication [11]. Jalil and Mahmood evaluated the relationship between four types of media and architecture in Babylon, Iraq, by distributing 110 questionnaires and identifying five evaluation-related concepts but did not carefully explore the relationship between them [5]. By drawing on the HCI system, Hespanhol and Dalsgaard explore nine ways media architecture interacts with social behavior. All of the above scholars explore how media architecture presents an interactive relationship with people through the screen.

However, during the practice, the classification methods and evaluation systems described above are hardly relevant to the Chinese context. As Schielke mentions, the Chinese media landscape presents a unique ecological system, so the main task of this chapter is to study and classify the existing media architecture in China (some scholars may not consider screen buildings to be the same as media buildings, but in the context of this article they are considered as such). Through the consolidation and study of a large amount of basic information on media architecture in Figure 5, an attempt is made to classify the media architecture in the Beijing Road area into several representative faces of Chinese media architecture.

a. City Advocate

The Chinese government is pursuing a strategy related to the night-time tourism economy in the second half of 2019, with a policy aimed at promoting many night-time tourism projects, including projects for transforming public commercial spaces at night. One example is Beijing Road, which has seen an influx of visitors after its renovation in 2020. Despite the presence of objective reasons such as covid-19, Beijing Road undoubtedly represents Guangzhou's commercial atmosphere and carries many social, cultural, and economic functions. The predecessors of media architecture may include the fields of advertising architecture, urban screens, illuminated architecture, interactive architecture, kinetic architecture, etc. Under the understanding of media theory, media architecture is a new tool of urban expression [8]. Therefore media architecture is destined to take on more missions than traditional architecture from the moment it is installed in the city. Buildings A and C are located at the entrance to Beijing Road, so it can be seen that the screen managers have placed many advertisements about values and surrounding activities, in addition to warnings about infectious diseases, on the screens in these two areas. It can be further observed that the advertisements placed in areas A and C are the most expensive because as people enter the Peking Road area, they may go to their respective destinations and miss some of the screens. Buildings H, I, and J are located at a congested intersection, and, as discussed in the previous section, we found that this area has the highest level of connectivity and integration and, therefore, the highest level of footfall. Therefore, the media buildings in this area also take on a more cultural and urban promotional role, as seen in the presentation of the content with many urban promotional films. Both A and C, with their attributes of welcome, and H, I, and J, with their attributes of cultural promotion, present an attitude of a cultural promoter of the city.

b. Hawkers

Media architecture is becoming increasingly affordable and ubiquitous in our built environment [22]. On another level, however, media screens are indeed one of the most convenient forms of advertising, with the flashing light presenting more

information and allowing the advertising sponsor to present a carefully crafted short film presentation. Buildings B, E, and K belong to the same category of hawkers, characterized by the fact that the content of the advertising presentation can be consumed inside the building itself so that their media content can be understood as another vivid sign. Building G is like a businessman with an eye for detail, as the large footfall of the Beijing Road area attracts investors from all provinces of China, and the willingness of some of them to display their activities on Beijing Road is, to some extent, a recognition of the commercial atmosphere of the area by the investors. On the other hand, building L is like a real estate broker, with many advertisements for real estate presented on this screen. The reason for this is that the primary mode of travel in this area is by car, so the audience served is mostly residents with cars, and it has to be admitted that Building L may bring in many real estate orders. Both Building G and L belong to the distant service hawkers.

c. Partygoers

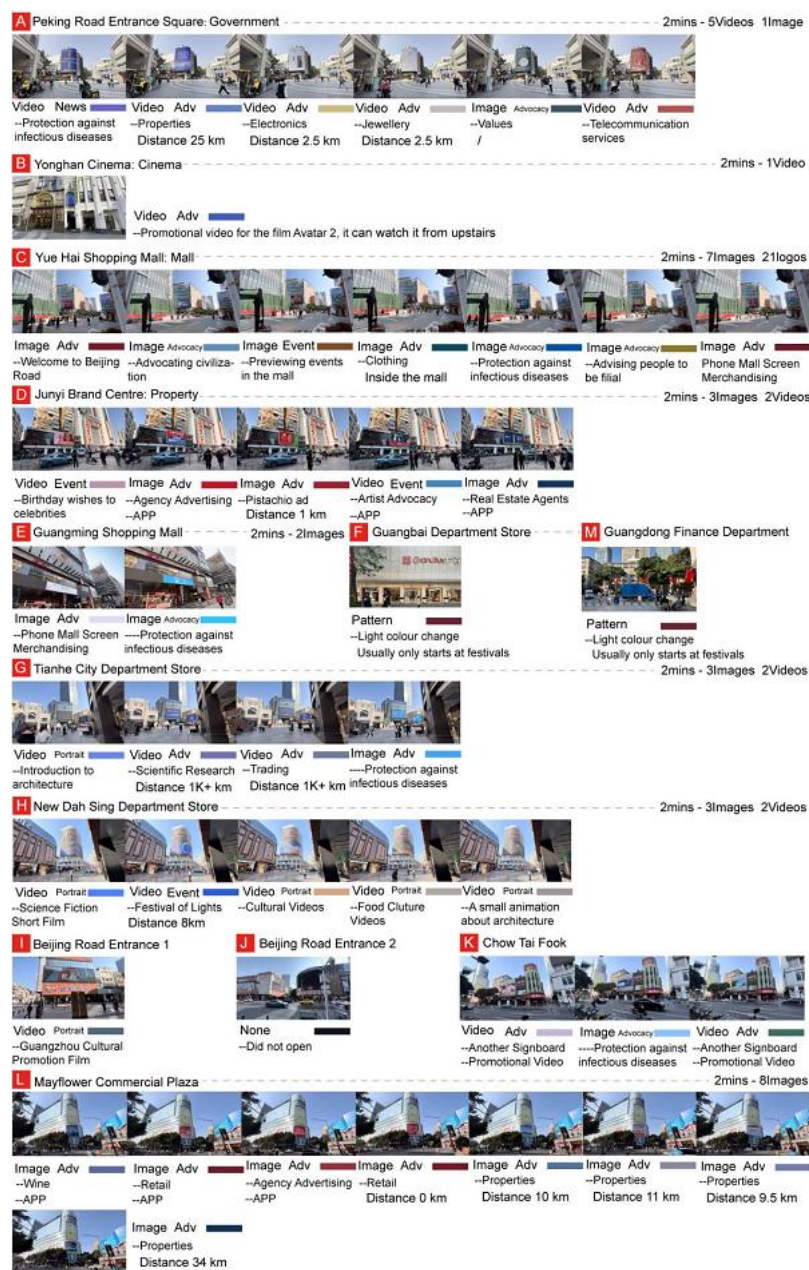


Figure 5. Content Research.

The main difference between the definition of a partygoer and the names mentioned above lies in the relationship between people and architecture. If city promoters and hawkers prefer the simple Hespanhol definition of appreciation and self-expression as a mode of interaction, partygoers tend towards a state of playfulness [24]. Architecture D shows the work of some young Chinese artists, and interviewer E in Pilot Research expressed a desire to see more youthful elements on the screen, such as Netflix and idols. The content of the young artist presented on Architecture D is a celebration of the young artist's birthday, which, according to subsequent research, is the work of the artist's fans. These fans' actions require the raising of large sums of money to rent the screen, which also demonstrates the democratic and autonomous nature of the decision on the content of the screen, where the user can determine the specific content of the screen and, thus the night-time view of the city. Pop artist Andy Warhol once said that everyone could have 15 minutes of fame in the future, and the media architecture allows everyone to control 15 seconds of the cityscape. Architecture F, M presents buildings that change in light and color, and although the content shown is less than what is shown on screen, the feeling left to those experiencing it in the city is not diminished by this; they are the party atmosphere group that adds the mood to the city's night scene that it should have.

Table 1. *A Summary of the Beijing Road Media Architecture.*

Category	Rents	Location	Audience	Content	Aims
City Advocate	High	Most central	Visitors	City Promotion Video	Creating a city image
Hawkers	Depends	High-traffic areas	Residents	Commercial advertising	Sale of merchandise
Partygoers	Low	Random	Consumers	Consumer Decisions	Creating a playable city

3.5. Hidden Codes in Social Media: Research of Network Evaluation

In the previous study, the spatial syntax method was used to explain the positioning of the media architecture of Beijing Road, and the visual ethnography took the content of the media architecture as the object and motive of explanation. The next stage of the study will focus on the accurate evaluation of the users of Beijing Road. The "Dianping" is selected as the object of social network evaluation, and the information related to Beijing Road, including the text of Beijing Road evaluation, the time of evaluation, the rating of Beijing Road, the number of likes, and so on, is crawled through the web crawling tool. It is a qualitative analysis of the overall evaluation of Beijing Road and complements the spatial syntax and content studies that do not reflect the actual usage and evaluation of the space.

Beijing Road is due to be upgraded in September 2020, and research has shown that around 12 screens will be installed by this date. All reviews and textual data are taken from the "Dianping" public data. According to Table 2, before the renovation of Beijing Road, 3,688 people commented that 13,840 photos were shared, with about 3.75 photos per person, 456,811 words shared, and 128.64 words per person, respectively, and these commenters gave a review score of 4.288. After the conversion, a total of 1731 people commented, 10887 photos were shared, 6.29 photos were shared per person, 230407 texts were shared, 133.11 texts were evaluated per person, and a review score of 4.549 was given.

Table 2. *Basic Status of Beijing Road Network Evaluation.*

Stage	Number of Comments	Number of Images Shared	Number per Capita	Number of Texts Shared	Number per Capita	Ranks
Before Conversion	3688	13840	3.75	456811	123.86	4.288
After Conversion	1731	10887	6.29	230407	131.11	4.549

The textual material was further researched and collated, and after cleaning and refining, nine units of research significance (Table 3) were compiled to explore the changes to the site brought about by the renovation of the media architecture. After the renovation, the perception and evaluation of the site improved, visitors felt the cultural atmosphere more, and the recommendation increased, making the visit more worthwhile. Visitors and neighborhood residents are also more enthusiastic about taking pictures after the renovation, as seen in the analysis of the essential information in the foreword and the desire to take pictures and share them. The renovation has brought a fresh feeling, and through the renovation of the media architecture, the frequency of night-time consumption has increased and appears more special.

Table 3. *Meaningful Unit Word Frequency Analysis.*

Word Frequency	Number of Mentions Before Conversion	Percentage of Overall Text Before Convention	Number of Mentions After Conversion	Percentage of Overall Text After Convention
“Feel”	636	0.46%	1028	0.49%
“Culture”	614	0.44%	978	0.47%
“Photogenic Spot”	417	0.30%	880	0.42%
“Recommend”	393	0.28%	645	0.31%
“Special”	409	0.30%	631	0.30%
“Evening”	293	0.21%	602	0.29%
“Worth it”	255	0.19%	410	0.20%
“Photo”	142	0.10%	383	0.18%
“Renovation”	96	0.07%	282	0.14%

However, basic information alone is not enough to understand the evaluation, as people tend to share their photos taken at the venue in their social media evaluations of the space, and often the photos shared are filtered or even secondary processed (filters, text, stickers, etc.). Daniel Miller, professor of anthropology at University College London, has been working on a project called 'Why We Post,' funded by the ESRC's Social Networks Programme[12]. The project refers to the visualization of social media at the expense of text and sound: the photograph has become a means of communication. The photo is a vehicle that conveys much information without having to say much and is a much more efficient and convenient way for both the publisher and the receiver of the information. The study of photographs is, therefore, unique in its significance.

Photographs published by users on social networking software (Figure 6) are collected and numbered through web crawling. The image classification tool used in this study is the EasyDL image classification tool, which applies a basic algorithmic model to machine learning the images. By manually training the model to a certain number, the machine can continue to classify many images. Drawing on Bernard Tschumi's ideas in *The Manhattan Manuscript*, he argues that “architecture is not

simply about space and form, but also about events, activities and everything that happens in space” [13]. In the book, he turns the function and organization of architecture to directing the occurrence of events or witnessing events, separating the uses, forms, and social values of architecture, and taking the interaction between human actions and objective objects (i.e., the relationship between events and space) as the starting point for his research. The Manuscript attempts to offer a new reading of architecture that separates space, activity, and event and looks at their relationship from a new perspective. Drawing on Quémie’s classification method, by categorizing the images into three main categories - space, activity, and event - and by adding the screen as a research variable, it attempts to explore the changing relationship between media architecture and social logic behind the images.

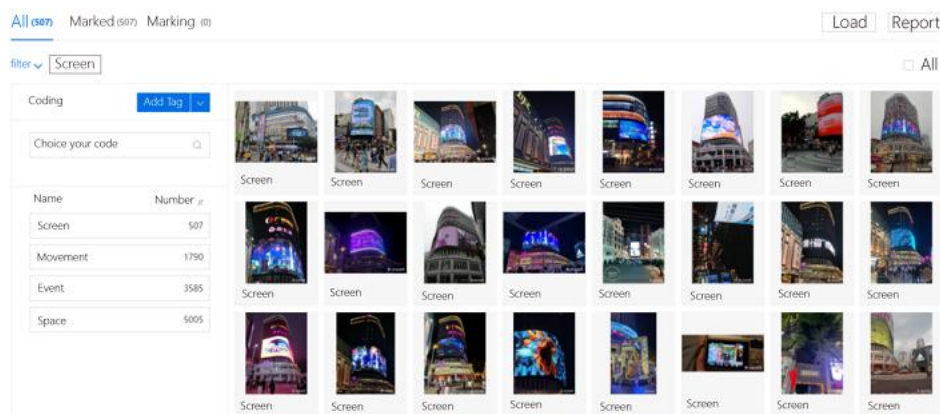


Figure 6. Photos of Media Architecture Collated through EasyDL with APP “Dianping”.

The machine algorithms called EasyDL’s classification of images shared on “Dianping” can uncover the following patterns. Movement accounted for a significantly higher proportion, roughly seven times the previous rate, with people wanting to post their photos to social media and using the renovated Beijing Road as a backdrop. Also, to further explore whether there was a link between the completion of the media architecture and the sharing of pictures after the renovation, the number of screen pictures shared before and after the renovation was found using machinery, and it was found that the number of screen pictures shared was approximately five times higher than before and was concentrated on the newly completed Xindaxin Company (also known as point H mentioned in the previous sequence). The sharing of people indicates an increase in punching behavior towards the site, which is a side indication of a higher level of recognition of the environment, and the sharing of the new screens to social networks indicates that visitors or residents also approve of the content displayed with the screens.

Table 4. Sorting Photos by EasyDL’s Machine Learning.

Categories	Before Conversion	Percentage	After Conversion	Percentage
Images Shared Number	13840		10887	
Space	8705	62.9%	5005	45.9%
Event	4681	33.8%	3585	32.9%
Movement	326	2.3%	1790	16.4%
Screen	128	0.9%	507	4.6%

4. Discussion

After the above rounds of research and discussion, some characteristics of media architecture can be found in this study. Furthermore, there are some patterns found concerning the Beijing Road area.

The research in 3.1 revealed that in the presence of a powerful media building, it was no longer the building that the interviewers were discussing; they were only focusing on the content presented on the screen when discussing the media building. They did not care much about why the media building was built and why it displayed this content; the content was replacing the building as the object of discussion. We can also understand that the content on the screen is replacing the role of physical space in the imagery of the city, and thus the content of media architecture becomes very important. At the same time, the further study of content in 3.4 shows that different areas show different content, probably because advertisers and city managers agree that the different media buildings have their own 'mission'. In conjunction with the spatial syntax of 3.3, it is clear that this 'mission' is also linked to different buildings' roles in the city.

The spatial syntax of 3.3 shows that media buildings are placed in the most comprehensible and cognitive locations in the Beijing Road area, especially at the intersection of H, I, and J, where media buildings occupy the most crucial position as comprehensible cityscapes. Media buildings with solid connections to places can influence people's perceptions of the city and their desire to share them to some extent.

Through the analysis of the word frequency of 3.5, we can see that media architecture has the property of media, and the purpose of media is to convey information, and it can play a role. However, there is also a need to be aware of the information explosion, as too much information can affect people's perception of the environment, so placing the suitable screens in the right places in the city and showing the right content is the most critical issue for media architecture to address and consider.

5. Conclusions

This paper studies and investigates a phenomenon that revolves around the city. The role of media architecture in today's cities is much more than what it appeared to be when it was first discovered, and it can even be understood as an artist [14]. China is a large developing country in Asia, which, unlike many European countries, has more opportunities for urban construction and renovation, and media architecture, as a mode of construction in the current era, is more appropriate for China's construction. However, the problems that arise during the construction process, and the issues regarding the adaptation to the specific Chinese context, need further investigation, and this is something that needs to be addressed in the studies as mentioned earlier [1,17,18]. By using various research tools, this paper examines several dimensions of media architecture in the Beijing Road area and obtains the following insights. Because the content of a media architecture influences the impression in the environment, it is essential to consider carefully what content should be designed concerning the audience it serves. The media architecture is often located in the most understandable locations in the area, so the design of the media buildings represents the overall image of the area to a certain extent. Media architecture contributes to the culture and popularity of the area with exciting content that attracts people to stop by

and share on social media and creates a unique image of the area on social media. The media architecture positively contributes to the site but depends on its specific design. In future research, an attempt can be made to use Beijing Road in Guangzhou as a definitive study for the rest of China's cities in depth, and in the process to complement the urban studies and media architecture research. It is hoped that a media map of Chinese cities can be constructed and a paradigm for the relationship between media architecture and cities in developing countries can be sketched out.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References

- [1] Chang, Z.G.; Cao, Q.; Xu, N. Media architecture Entrance to a mixed space. *Times Architecture*, 2019, 2, 33-35.
- [2] Primasari, L.; Basauli, U.L. Urban screen and spatial dimension. *ITB J. Vis. Art & Des* 2013, 4(2), 2-3.
- [3] Schembri, S.; Maree V.B. Visual ethnography: Achieving rigorous and authentic interpretations. *Journal of Business Research*, 2013, 66(9), 1251-1254.
- [4] Verhoeff, N. Interfaces of media architecture. *Media Architecture: Using Information and Media as Construction Material*, 2017, 8, 43
- [5] Jalil, W.D.A.; Hadeel, M.M. User Evaluation of Media Technology in the Urban Scene of the City. *Journal of University of Babylon for Engineering Sciences*, 2018, 26(6), 32-47.
- [6] Wiethoff, A.; Heinrich, H. *Media architecture*. Berlin: De Gruyter Mouton, 2017.
- [7] McLuhan, Herbert Marshall, and Quentin Fiore. *The medium is the message*. Vol. 123. Random House: New York, 1967.
- [8] Pink, Sarah. *Doing visual ethnography*. Sage, 2007.
- [9] Hillier, Bill, and Julienne Hanson. *The social logic of space*. Cambridge university press, 1989.
- [10] Ashihara, Y. *The aesthetics of cityscapes*. Vol. 1. Iwanami Shoten, 1979.
- [11] Krajina, Zlatan. *Negotiating the mediated city: Everyday encounters with public screens*. Routledge, 2013.
- [12] Horst, Heather A., and Daniel Miller, eds. *Digital anthropology*. Routledge, 2020.
- [13] Tschumi, Bernard. *"The manhattan transcripts."* (1994).
- [14] Ptichnikova, G. Artistic Resources of Media Architecture. *International Conference on Architecture: Heritage, Traditions and Innovations (AHTI 2019)*. Atlantis Press, 2019.

- [15]Shokrani, Media, et al. Designing an AR urban game (HAMAJA) for increasing engagement in city. *Media Architecture Biennale*, 2021, 20, 184-188.
- [16]Lee, S.J. Citywide management of media facades: Case study of Seoul city. *Proceedings of the 3rd Conference on Media Architecture Biennale*. 2016.
- [17]McArthur, Ian. Mapping Chongqing's Urban Media Ecology. *Proceedings of the 4th Media Architecture Biennale Conference*. 2018.
- [18]Schielke, Thomas, and Lin Ma. Media scapes in China: The empire of figures transforms into connected media facades. *Media Architecture Biennale*, 2021, 20, 221-226.
- [19]Anderson, S.; Niels, W.; Ryan, J. Decolonising the Urban Screen: An Argument and Approach for First Peoples-led Content Programs in Massive Media. *Media Architecture Biennale*, 2021, 20, 66-78.
- [20]Moere, A.V.; Niels, W. The role of context in media architecture. *Proceedings of the 2012 International Symposium on Pervasive Displays*. 2012.
- [21]Liu, P.; Luke, H. Playing with the Spirit of a Place: Designing Urban Interactions with Hybrid-Resolution Media Facades. *Media Architecture Biennale*, 2021, 20, 31-41.
- [22]Hespanhol, L.; Martin, T. Designing for collective participation with media installations in public spaces. *Proceedings of the 4th Media Architecture Biennale Conference: Participation*. 2012.
- [23]Wouters, Niels, et al. Revealing the architectural quality of media architecture. *Proceedings of the 3rd Conference on Media Architecture Biennale*. 2016.
- [24]Hespanhol, L.; Peter Dalsgaard. Social interaction design patterns for urban media architecture. *Human-Computer Interaction–INTERACT 2015: 15th IFIP TC 13 International Conference, Bamberg, Germany, September 14-18, 2015, Proceedings, Part III 15*. Springer International Publishing, 2015.
- [25]Pavlaki, E. Media interventions in public space: A place-based approach for the assessment of human experience in digitally augmented urban environments. Diss. University of Nottingham, 2021.



© 2023 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)